
Canal Seepage
ESHMC
6 March 2008
B. Contor

Outline

- Update on recharge tool
- Review of findings
- Recommendation
- Request for input

.cnl file

Note: Tool has been modified to include a PEST multiplier!

It now appears between cell count & entity name.

Herman.cnl - Note

File Edit Search Help

```
LINE ASSOCIATION
3
9 IESW040
22 13
22 14
25 11
25 12
21 14
24 12
24 13
23 13
26 11
13 IESW037...

STRESS PERIOD 1
1
0.15 0.13 0.16
STRESS PERIOD 2...
```

Number of leaky canals

Entity ID

Number of cells that the first canal covers

Row and column of cells covered by the first canal

Source of data
1 - new data
0 - no data
-1 - use previous data

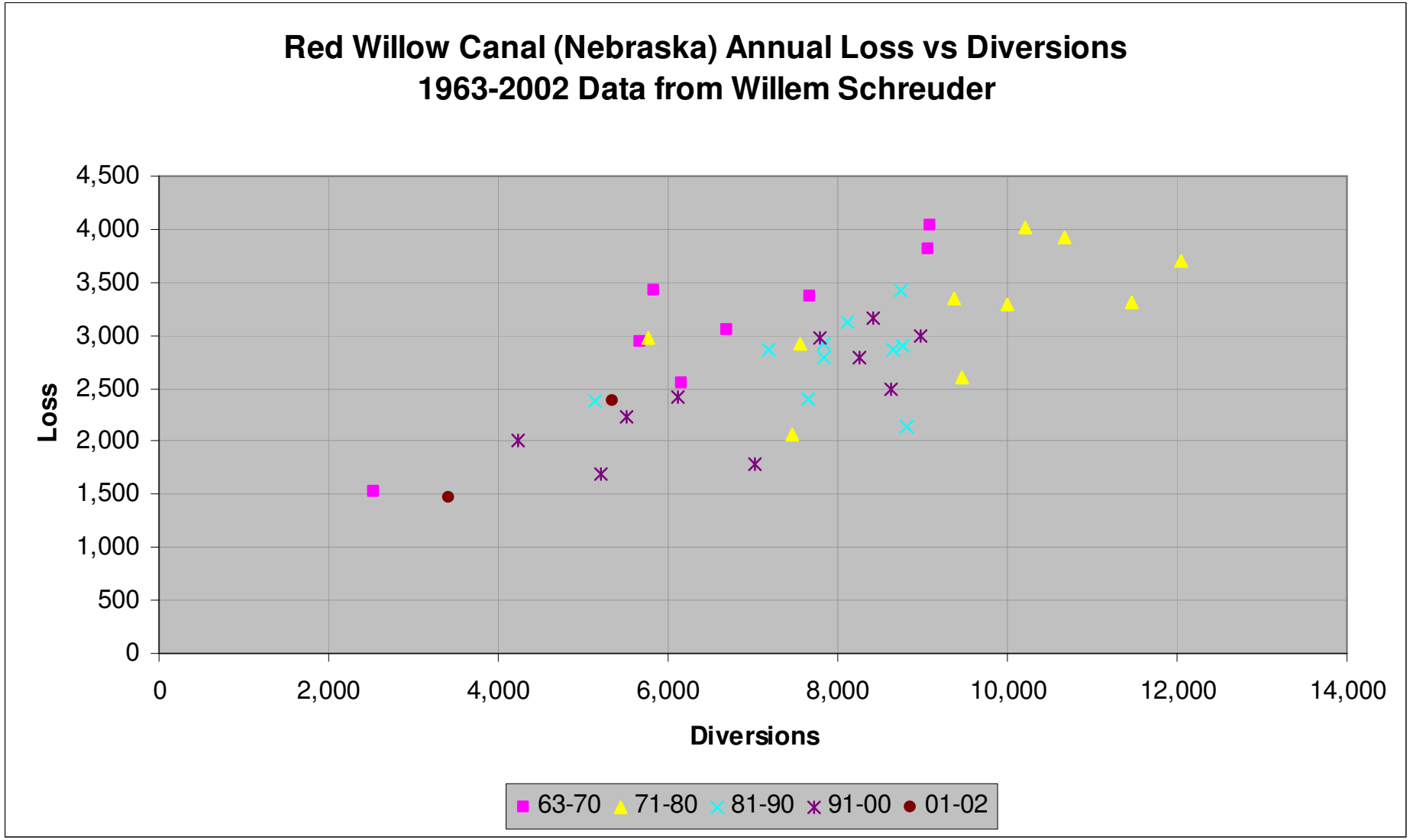
Proportion of diversion volume leaked from each canal (proportion in same order as canals are listed)

Canal seepage data

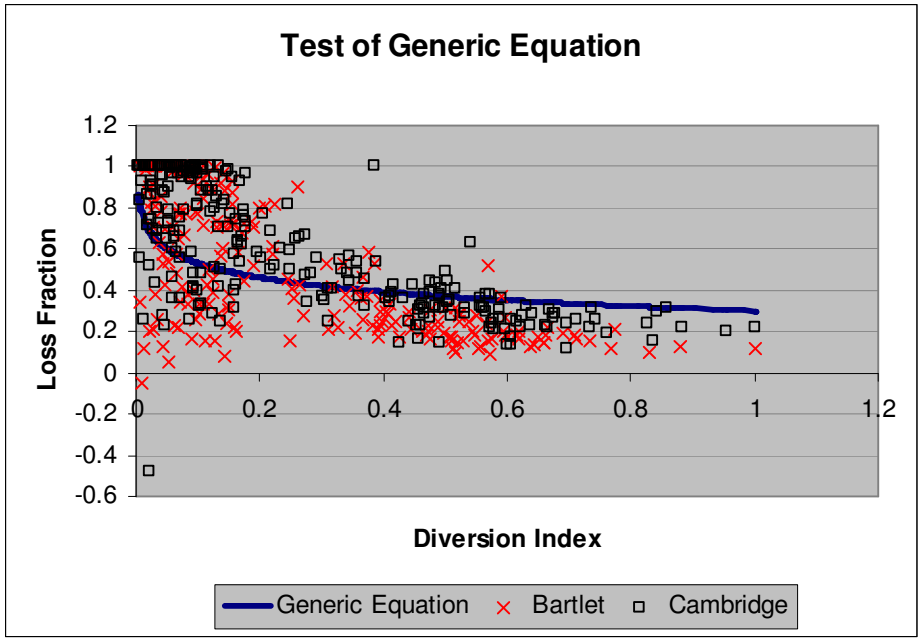
Update on Findings

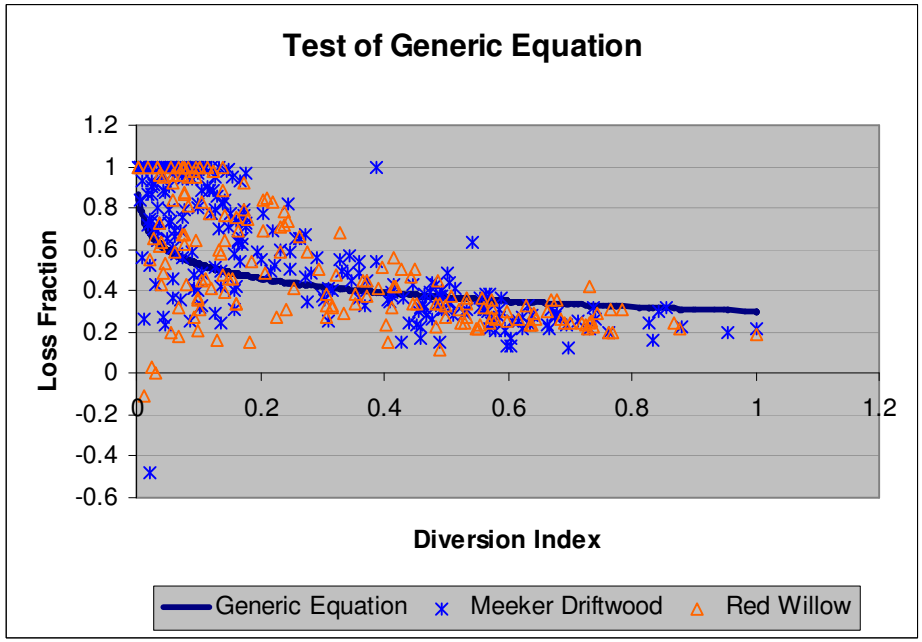
- Nebraska data (Dr. Schreuder)
- Mexico data (ESPAM 1.1)
- Aberdeen-Springfield data (Steve Howser)

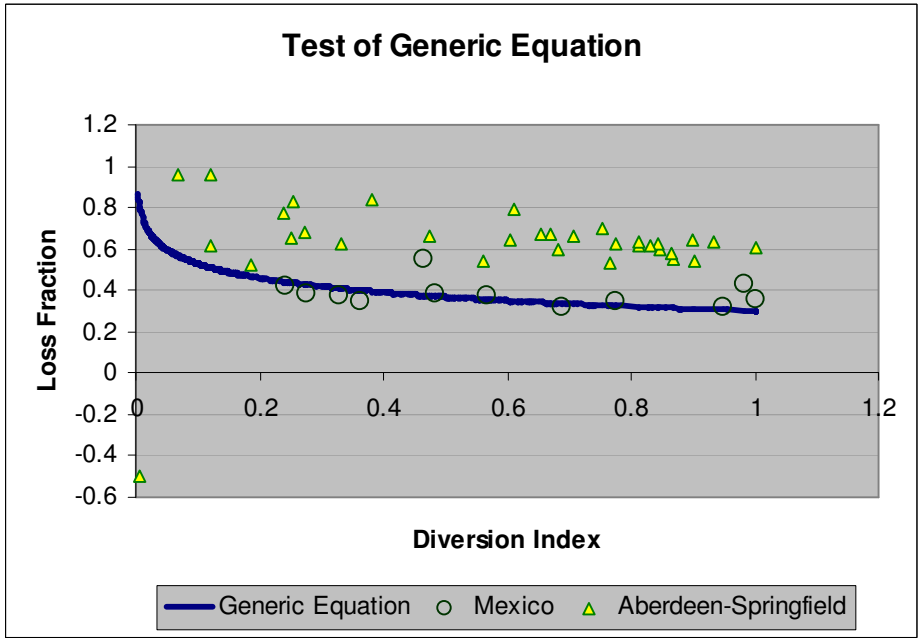
1) Nebraska relationships stable over multiple years



2) Generic log relationship seems to fit



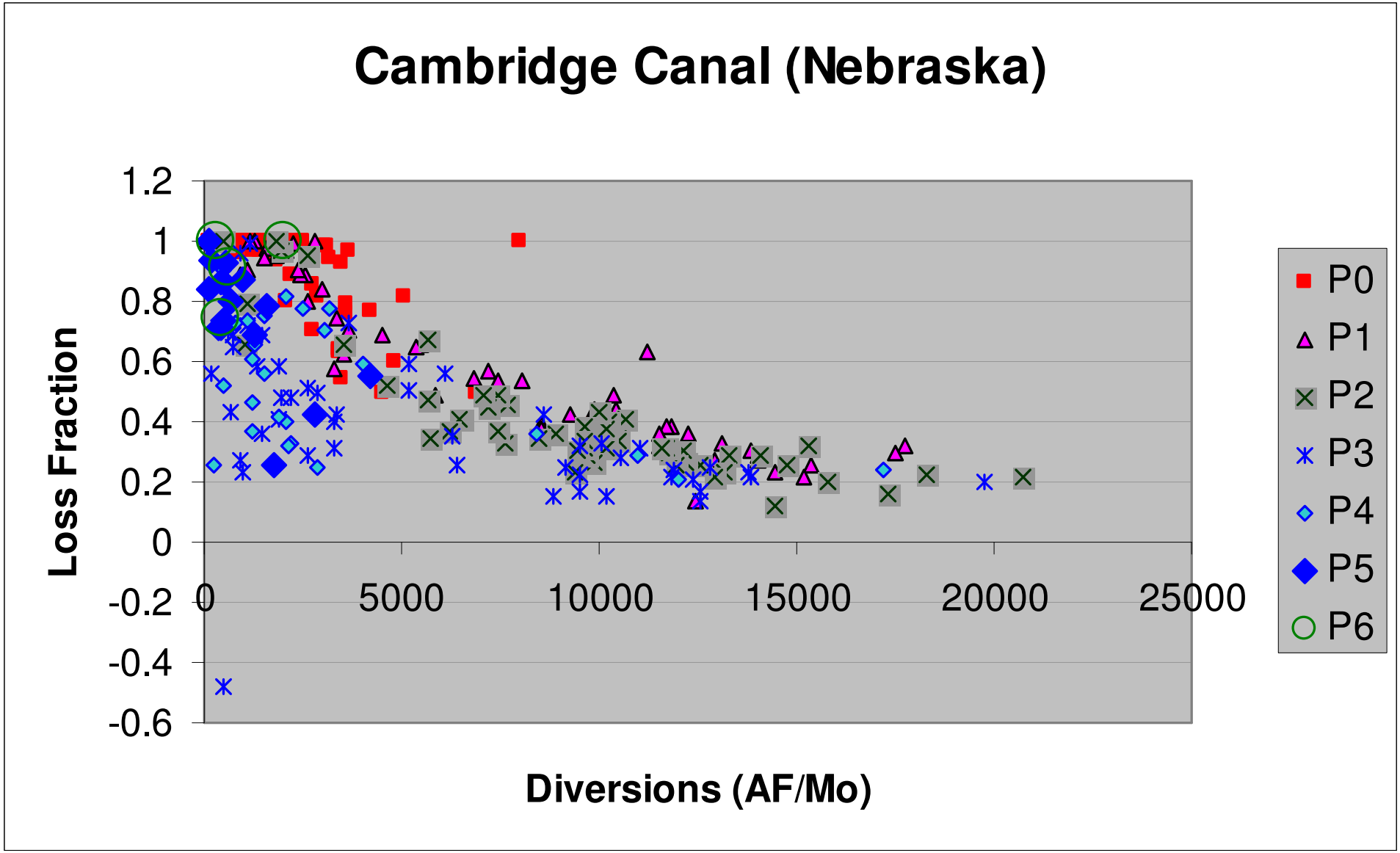




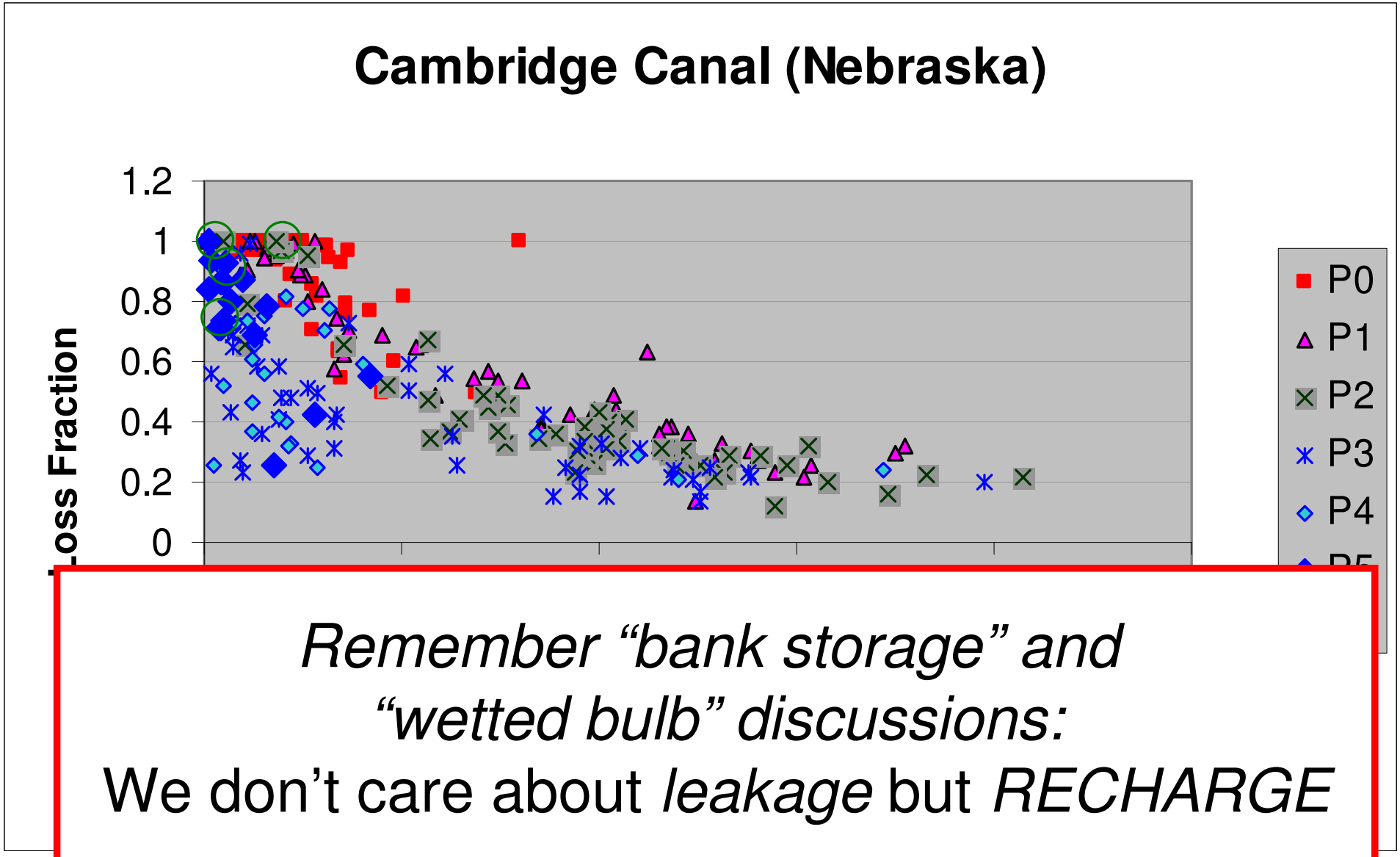
Monthly Seepage Fraction = 0.30 – 0.10 (ln (Div Indx))

Div Indx = (monthly diversions) / (max diversions)

3) Seasonal variation



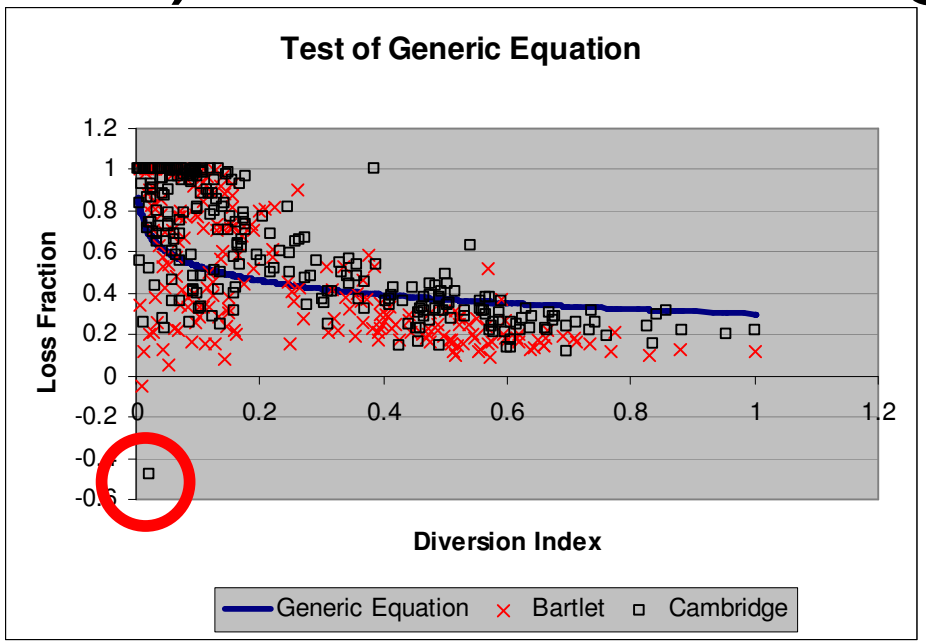
3) Seasonal variation

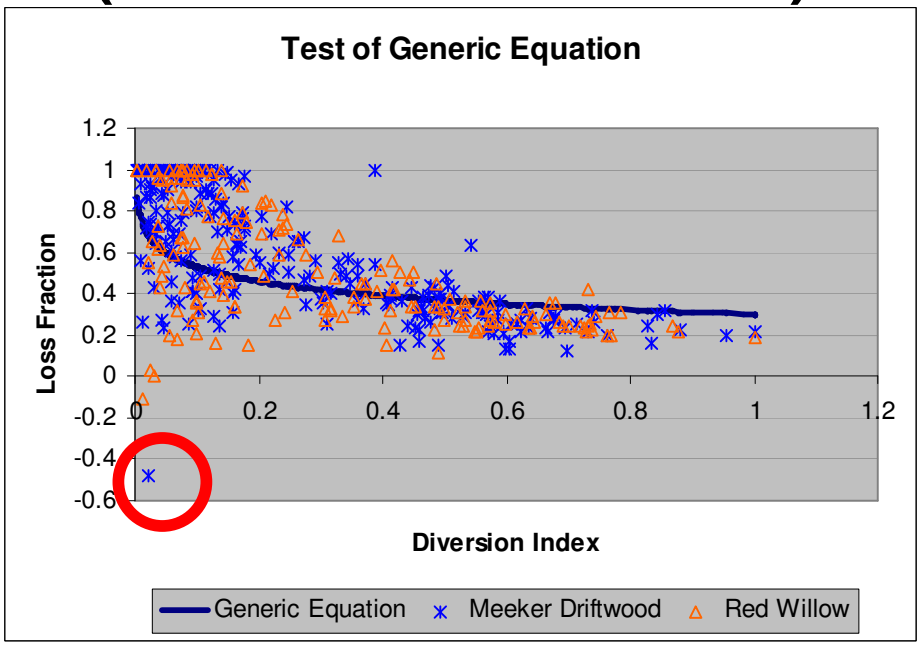


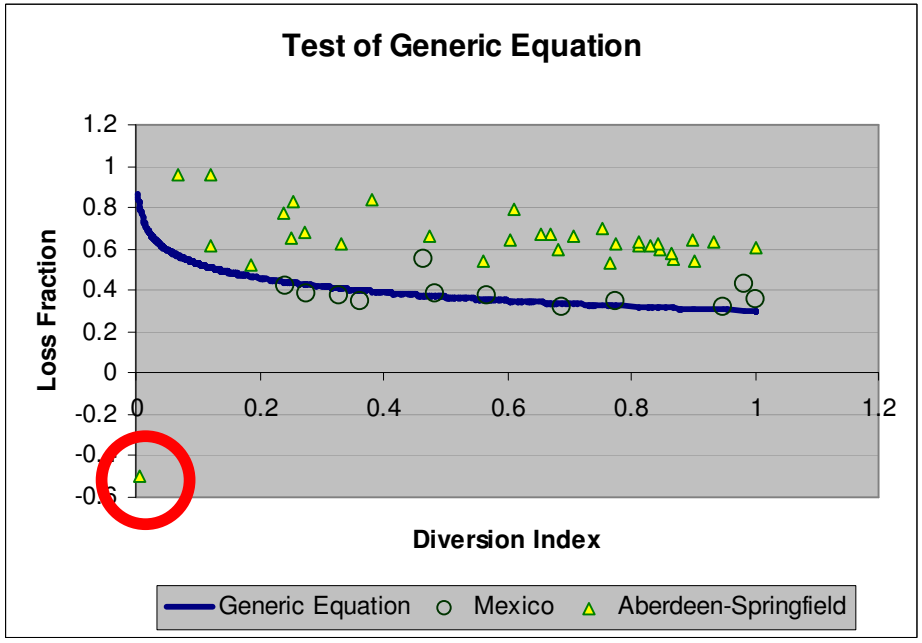
Remember "bank storage" and "wetted bulb" discussions:

We don't care about *leakage* but *RECHARGE*

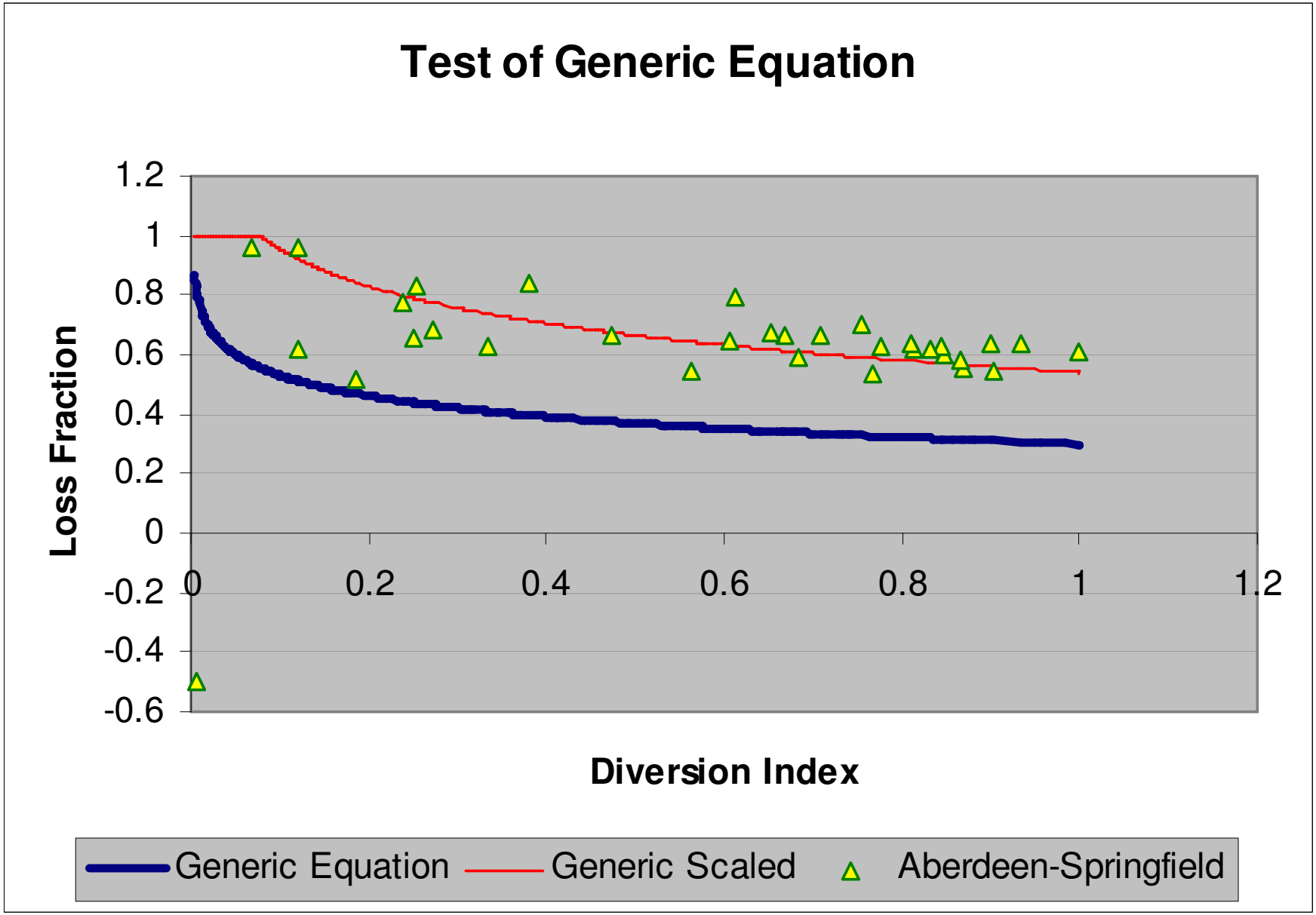
4) Bank storage (season end)







5) PESTibilities

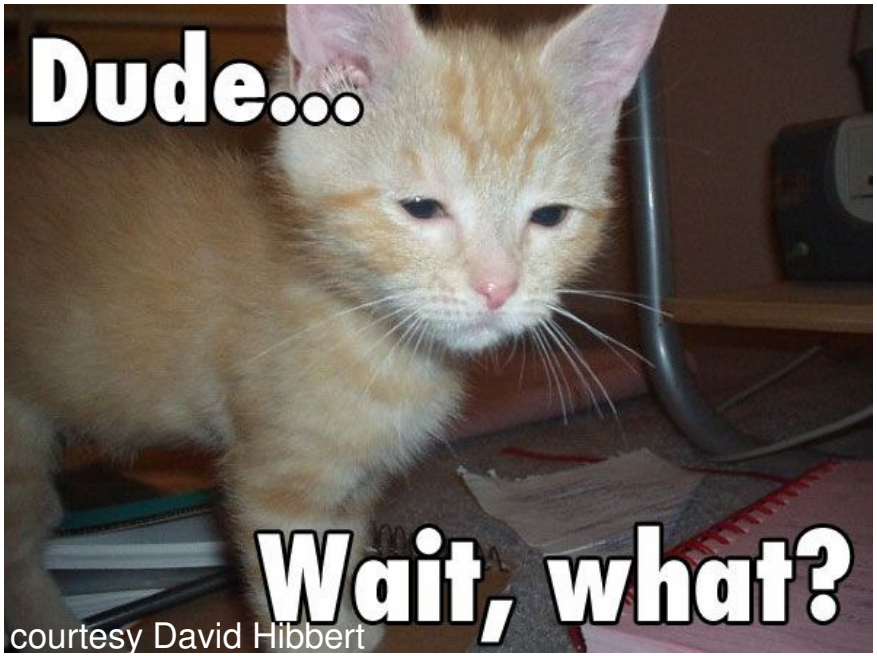


Recommendation

- Retain current recharge tool algorithms
  - PESTible
  - Change seepage algorithms w/o reprogramming
  - Guarantees no recharge in months w/o diversions
- Represent all major canals as leaky
  - IDWR is currently doing GIS work
- Use actual seepage-rate data where available, estimates elsewhere

Input requested: Which algorithm?

- Fixed percentage?
  - less opportunity for blunder
  - less likely to exceed our knowledge
- Semi-log “generic equation?”
  - seems to fit the data



courtesy David Hibbert

(Bryce can’t decide)

(End)